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F4V VCF V101 V105

(56) Documents Cited

GB 2139749 A GB 1040469 A EP 0713792 A1
FR 002623776 A1 FR 002608520 A1 US 4223754 A

(58) Field of Search

UK CL (Edition R) B7B BPC BPD, F4V VCF VGBB
VGBE
INT CL⁷ B60H 1/24 1/34
ONLINE : WPI, EPODOC, JAPIO

(54) Abstract Title

Ventilation device for vehicles

(57) A ventilation device for an interior 10 of a vehicle fitted with a windscreen 11 and dashboard 14, which device has a plurality of air exit openings 15 which are left open in the dashboard 14 in the vicinity of the windscreen 11 and are arranged next to one another in two rows lying one behind the other, as seen in the direction of travel. In order to ensure that a large windscreen is free from misting without the air-conditioning comfort in the interior being adversely affected, each row of air exit openings 15 is connected to one of two separate supply ducts 18, 19, and the air supply duct 18 leading to the front row is charged with hot air warmed up to a higher degree than the air supply duct 19 leading to the rear row.

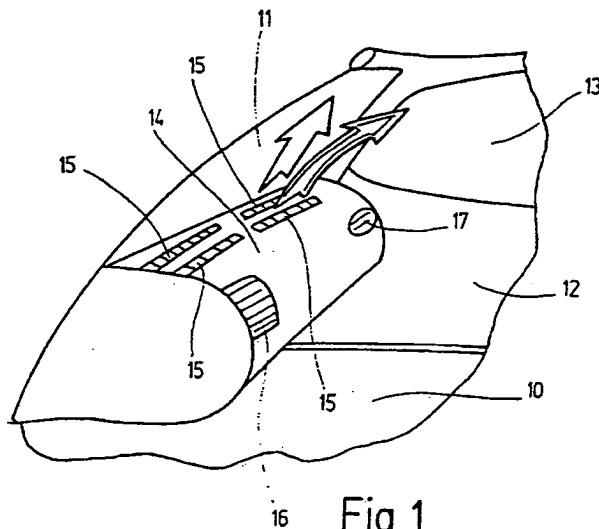


Fig. 1

GB 2 345 672 A



Application No: GB 0000866.4
Claims searched: All

Examiner: Paul Gavin
Date of search: 24 March 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): B7B(BPC, BPD), F4V(VCF, VGBB, VGBE)

Int Cl (Ed.7): B60H(1/24,34)

Other: Online : WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2 139 749 A (HONDA) - Consider whole document	1 & 5 at least
X	GB 1 040 469 (PININFARINA) - Consider whole doc.	1 & 5 at least
X	EP 0 713 792 A1 (FIAT) - Consider whole document	1 & 5 at least
X	FR 2 623 776 A1 (RENAULT) - Consider abstract & figures.	1 & 5 at least
X	FR 2 608 520 A1 (CHAUSSON) - Consider abstract & figures.	1 & 5 at least
X	US 4 223 754 (HONDA) - Consider whole document	1 & 5 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

The ventilation device according to the invention has the advantage that the air which is heated up to a higher degree and comes from the front air exit openings lying in the vicinity of the windscreen is placed against the windscreen as a hot-air film and ensures its freedom from misting, while the cooler air flow from the rear air exit openings lying closer to the vehicle occupants passes into the upper air space and sets the desired air-conditioning comfort here.

Advantageous embodiments of the ventilation device according to the invention with expedient refinements and developments of the invention emerge from the other patent claims.

The invention is described in more detail below with reference to an embodiment illustrated in the drawing in which, in each case in schematic representation:

Fig. 1 shows part of a perspective illustration of the front region of an interior of a car having a windscreen and dashboard arranged below it,

Fig. 2 shows part of a plan view of the dashboard in Fig. 1,

Fig. 3 shows part of a section along the line III-III in Fig. 2,

Fig. 4 shows part of a section along the line IV-IV in Fig. 2,

Fig. 5 shows part of a section along the line V-V in Fig. 2, and

Fig. 6 shows an identical representation to the one in Fig. 3 with an air-distributing guide in the air supply.

In Fig. 1, part of the front region of an interior 10 or of a passenger cell of a car is represented schematically. As is known, the interior 10 is closed off at the front end by a windscreen 11 and at the sides by vehicle doors 12 having side windows 13. Below the windscreen 11 there is arranged a dashboard 14 which extends along the lower edge of the windscreen 11 over the entire width of the interior 10. A ventilation device for the interior 10 has a plurality of air exit openings 15 left open in the dashboard 14 in the vicinity of the windscreen 11, and also further air nozzles 16 and 17 inserted into the dashboard 14. The said air nozzles are known as central nozzles 16 and side nozzles 17.

The air exit openings 15 are arranged next to one another in two rows lying one behind the other, as seen in the direction of travel, there being at least two air exit openings 15 in each row (Fig. 2). As the sectional representations in Figs. 3 to 5 show, the at least two air exit openings 15 of one row are in each case connected to one of two separate air supply ducts 18, 19 which lead to the air-conditioning box 20 of an air-conditioning system and can be charged therewith air warmed up to different

temperatures. Each of the air supply ducts 18 and 19 are respectively connected to the associated air exit openings 15 in the front and rear rows by, for example, a cup-shaped distributor piece 21 (Figs. 3-5) which by at least two outlet connecting stubs 22 is placed in an airtight manner onto nozzle housings 23 which, for their part, are inserted into each of the air exit openings 15 from the upper side of the dashboard 14. The end of the air supply duct 18 or 19 is pushed onto an inlet connecting stub 24, which is integrally formed on the distributor piece 21. For the sake of simplicity, the air-guiding ducts 18, 19 between the distributor pieces 21 and the air-conditioning box 20 are symbolized by arrows.

Via an air distributor in the air-conditioning box 20 the air supply duct 18 is charged with strongly heated-up air which flows out via the air exit openings 15 in the front row lying in the vicinity of the windscreen 11 and positions itself against the windscreen 11 as a hot-air film. This hot-air film of relatively high temperature ensures that even a particularly large windscreen 11 is free from misting. In contrast, the air supply duct 19 is charged with air which is warmed up under conditions of comfort and flows via the air exit openings 15, lying closer to the passengers, in the rear row into the vehicle space above the dashboard 14 where it passes into the region around the passengers' heads. This warmed air flow on the one hand supplies the head region of the interior 10 with air which is warmed up under conditions of comfort and which is customarily cooler than the air flowing into the footwell of the interior 10 and therefore ensures good air-conditioning comfort for the passengers, and on the other hand prevents the highly heated-up hot-air film on the windscreen 11 from flowing, for its part, directly to the region around the passengers' heads.

Since from the point of view of comfort the supply of air to the passenger cell takes place separately for the driver side and front-passenger side of the vehicle interior, the air supply duct 19 - as is shown in Fig. 5 - is divided up into two separate ducts 191 and 192 which are guided to in each case one inlet connecting stub 24 of the distributor piece 21. Each inlet connecting stub 24 is connected to at least one outlet connecting stub 22 into which a respective nozzle housing 23 for the left and right vehicle sides is inserted. In contrast, the air supply of the strongly heated air to the windscreen 11 does not need to be separated and so there is only a single air supply duct 18, as can be seen in the sectional representation of Fig. 4.

In the modified ventilation device according to Fig. 6, where the air exit openings 15 are connected to the air supply ducts 18 and 19 an air-distributing guide 25 is arranged in such a manner that in addition all of the air exit openings 15 can be connected alternately to one or other air supply duct 18 or 19. For this purpose, the air-distributing guide 25 has a Y-pipe 26 whose two Y-legs 261, 262 produce the connection between the front and rear rows of the air exit openings 15 and one of the air supply ducts 18 and 19 in each case. An air flap 27 is arranged pivotably in the centre of the Y-pipe 26, specifically in such a manner that in its central basic position it separates the Y-legs 261, 262 from each other, and in its two pivoted end positions (shown by dashed lines in Fig. 6) alternately connects the two rows of the two air exit openings 15 to one or the other air supply duct 18 or 19. In the left pivoted end position (shown by dashed lines in Fig. 6) of the pivoting flap 27, the connecting stub 24, which is connected to the air supply duct 18, is shut off and all of the air exit openings 15 are connected to the air supply duct 19 for the warmed-up supply of air, while in the right pivoted end position (shown by dashed lines in Fig. 6) of the air flap 27 the inlet connecting stub 24, which is connected to the air supply duct 19, is shut off and all of the air exit openings 15 are connected to the air supply duct 18 conducting the air heated up to a higher degree. The pivoting flap 27 can be activated manually or by an automatic adjustment means.

Alternatively, the air exit openings lying in each row can be combined to form a continuous slot which extends over the entire width of the dashboard 14, it being possible for each slot to be covered by a decorative grate.

Claims

1. A ventilation device for an interior of a vehicle fitted with a windscreen and dashboard, the device having a plurality of air exit openings which are open in the dashboard in the vicinity of the windscreen and are arranged next to one another in two rows lying one behind the other, as seen in the direction of travel, wherein each row of air exit openings is connected to one of two separate air supply ducts, and the air supply duct leading to the front row is charged with hot air at a higher temperature than the air supply duct leading to the rear row.
2. A ventilation device according to Claim 1, wherein the air supply ducts are connected to the air-conditioning box of an air-conditioning system, and the air flowing in the air supply duct leading to the rear row of the air exit openings is warmed up under conditions of comfort, and the air flowing in the air supply duct leading to the front row of the air exit openings is heated up strongly.
3. A ventilation device according to Claim 1 or 2, wherein the air exit openings of each row are combined to form a continuous slot.
4. A ventilation device according to Claim 1 or 2, wherein the air supply duct leading to the rear row of air exit openings is divided up, in order separately to supply the right and left sides of the vehicle interior with air, into two separate air ducts each of which is connected to at least one air exit opening in the right and left halves of the dashboard in the rear row.
5. A ventilation device for an interior of a vehicle fitted with a windscreen and dashboard, the device having a plurality of air exit openings which are open in the dashboard in the vicinity of the windscreen and are arranged next to one another in two rows lying one behind the other, as seen in the direction of travel, wherein the air exit openings in the front and rear rows are connected via a switchable air-distributing guide to two air supply ducts respectively charged with hot air warmed up to a higher and lower temperature, and the air-distributing guide is designed in such a manner that in a basic position of the air-distributing guide the air exit openings of the front row are

connected to the air supply duct charged with hot air warmed up to a higher degree, and the air exit openings of the rear row are connected to the air supply duct charged with hot air warmed up to a lower degree, and in two switch-over positions of the air-distributing guide in each case all of the air exit openings can be connected alternately to one or other air supply duct .

6. A ventilation device according to Claim 5, wherein the air-distributing guide has a Y-pipe whose two Y-legs produce the connection between the front and rear rows of the air exit openings and one of the air supply ducts in each case, and has an air flap which is arranged pivotably and centrally in the Y-pipe and in its central basic position separates the Y-legs from each other and in its two pivoted end positions alternately connects the two rows of the air exit openings to one or the other air supply duct.

7. A ventilation device for an interior of a vehicle fitted with a windscreen and dashboard, substantially as described herein with reference to, and as illustrated in, the accompanying drawings.

Ventilation device for vehicles


The invention relates to a ventilation device for an interior of a vehicle fitted with a windscreen and dashboard, the device having a plurality of air exit openings which are open in the dashboard in the vicinity of the windscreen and are arranged next to one another in two rows lying one behind the other, as seen in the direction of travel.

In the case of a known ventilation device of this type (US 3 608 469), the air exit openings serve as defroster nozzles for keeping the windscreen demisted and are connected to a common hot-air duct. Because the hot air is blown out in a spaced apart manner, in the exit region of two air openings arranged one behind the other there form vortices and dynamic negative pressure zones which bunch up the two separate air flows to form a narrow flow which blows in a targeted manner against the windscreen, thereby intensifying the effect of removing the moisture and keeping the windscreen demisted.

Because windscreens in modern cars are arranged in an increasingly flatter manner, the height or length of the windscreens is also becoming continuously larger. The greater lengths causes the air brushing against the windscreen to cool more strongly. In order to ensure that the windscreen is kept demisted, when the ambient temperature is cool air of a relatively high temperature has to be blown out at the air exit openings. This highly heated air also flows into the air space above the dashboard to the passengers' heads. However, to give air-conditioning comfort in the interior, the aim is for a hot footwell and a cool upper air space around the head.

The present invention seeks to provide a ventilation device of the type mentioned at the beginning which firstly keeps large windscreens reliably demisted and secondly ensures the usual air-conditioning comfort in the interior.

According to the present invention there is provided a ventilation device for an interior of a vehicle fitted with a windscreen and dashboard, the device having a plurality of air exit openings which are open in the dashboard in the vicinity of the windscreen and are arranged next to one another in two rows lying one behind the other, as seen in the direction of travel, wherein each row of air exit openings is connected to one of two separate air supply ducts, and the air supply duct leading to the front row is charged with hot air at a higher temperature than the air supply duct leading to the rear row.

邮政编码: 100037 北京市阜成门外大街2号万通新世界广场8层 中国国际贸易促进委员会专利商标事务所 李德山 6031788 申请号: 031523080		发文日期 
申请人: 日产自动车株式会社		
发明创造名称: 车辆空调系统		

第一次审查意见通知书

- ☒ 应申请人提出的实审请求, 根据专利法第35条第1款的规定, 国家知识产权局对上述发明专利申请进行实质审查。
☐ 根据专利法第35条第2款的规定, 国家知识产权局决定自行对上述发明专利申请进行审查。
- ☒ 申请人要求以在:

JP	专利局的申请日	2002年07月29日	为优先权日,
	专利局的申请日	年 月 日	为优先权日,
	专利局的申请日	年 月 日	为优先权日,
	专利局的申请日	年 月 日	为优先权日,
	专利局的申请日	年 月 日	为优先权日,

☐ 申请人已经提交了经原申请国受理机关证明的第一次提出的在先申请文件的副本。
☐ 申请人尚未提交经原申请国受理机关证明的第一次提出的在先申请文件的副本, 根据专利法第30条的规定视为未提出优先权要求。
- ☐ 经审查, 申请人于:

年 月 日提交的	不符合实施细则第51条的规定;
年 月 日提交的	不符合专利法第33条的规定;
年 月 日提交的	
- 审查针对的申请文件:
 ☒ 原始申请文件。 ☐ 审查是针对下述申请文件的

申请日提交的原始申请文件的权利要求第	项、说明书第	页、附图第	页;
年 月 日提交的权利要求第	项、说明书第	页、附图第	页;
年 月 日提交的权利要求第	项、说明书第	页、附图第	页;
年 月 日提交的说明书摘要,	年 月 日提交的摘要附图。		
- ☐ 本通知书是在未进行检索的情况下作出的。
☒ 本通知书是在进行了检索的情况下作出的。
☒ 本通知书引用下述对比文献(其编号在今后的审查过程中继续沿用):

编号	文件号或名称	公开日期(或抵触申请的申请日)
1	GB 2345672A	2000. 7. 19
2	GB 2311850A	1997. 10. 8
- 审查的结论性意见:
 ☐ 关于说明书:
☐ 申请的内容属于专利法第5条规定的不授予专利权的范围。

21301
2002. 8



回函请寄: 100088 北京市海淀区蓟门桥西土城路6号 国家知识产权局专利局受理处收
(注: 凡寄给审查员个人的信函不具有法律效力)

第一次审查意见通知书正文

申请号：031523080

本申请涉及一种车辆空调系统，经审查，现提出如下的审查意见。

权利要求1-2, 8所要求保护的技术方案不具备专利法第二十二条第二款规定的新颖性。对比文件1(GB2345672A)公开了一种车辆空调通风装置，参见该对比文件的图1和图6，该车辆空调通风装置有出风口16, 17；有多个除风档玻璃的除霜口15，从图6可以看出，除霜管道22分支为两个支管23，中间设置有切换风门25，由此可见，对比文件1已经公开了该权利要求1-2, 8的全部技术特征，且对比文件1所公开的技术方案与该权利要求1-2, 8所要求保护的技术方案属于同一技术领域，并能产生相同的技术效果，因此该权利要求1-2, 8所要求保护的技术方案不具备新颖性。

从属权利要求3是权利要求2的从属权利要求，其限定部分附加技术特征为“所述的车辆空调系统，进一步包括：用于开启和关闭辅助管道的空调空气通道的启/闭风门”，但这些特征已在对比文件2(GB2311850A)中图1中的附图标记24中公开了，由此可知在对比文件1的基础上结合对比文件2得出该权利要求进一步限定的技术方案，对本领域的技术人员来说是显而易见的，因而在其引用的权利要求不具备新颖性的情况下，该从属权利要求3不具备专利法第二十二条第三款规定的创造性。

从属权利要求4-5是权利要求1的从属权利要求，其限定部分附加技术特征为“所述的车辆空调系统，其中，辅助出口包括上出风口，上出风口设置在仪表盘上表面上，以把空调空气分配到车辆后座”和“辅助出口包括设置在车辆后座附近的后出风口”，但这些特征已在对比文件2(GB2311850A)中图1中的附图标记23, 25和说明书第10页第20行中公开了，由此可知在对比文件1的基础上结合对比文件2得出该权利要求进一步限定的技术方案，对本领域的技术人员来说是显而易见的，因而在其引用的权利要求不具备新颖性的情况下，该从属权利要求4-5不具备专利法第二十二条第三款规定的创造性。同理，独立权利要求7也不具备专利法第二十二条第三款规定的创造性。

申请人应根据本通知书中引用的对比文件修改独立权利要求以及相应的从属权利要求，并在意见陈述书中论述新修改的独立权利要求相对于本通知书中引用的对比文件具有创造性的理由。此外，为了简明清楚，所有的权利要求应加上附图标记，说明书(包括背景技术部分回引上述对比文件)应根据修改后的权利要求书作适应性修改。申请人对申请文件的修改应当符合专利法第三十三条的规定，不得超出原说明书和权利要求书的记载范围。

- ☐说明书不符合专利法第 26 条第 3 款的规定。
☐说明书不符合专利法第 33 条的规定。
☐说明书的撰写不符合实施细则第 18 条的规定。

☒关于权利要求书:

- ☒权利要求 1-2, 8 不具备专利法第 22 条第 2 款规定的新颖性。
☒权利要求 3-5, 7 不具备专利法第 22 条第 3 款规定的创造性。
☐权利要求 不 具备专利法第 22 条第 4 款规定的实用性。
☐权利要求 属于专利法第 25 条规定的不授予专利权的范围。
☐权利要求 不符合专利法第 26 条第 4 款的规定。
☐权利要求 不符合专利法第 31 条第 1 款的规定。
☐权利要求 不符合专利法第 33 条的规定。
☐权利要求 不符合专利法实施细则第 2 条第 1 款关于发明的定义。
☐权利要求 不符合专利法实施细则第 13 条第 1 款的规定。
☐权利要求 不符合专利法实施细则第 20 条的规定。
☐权利要求 不符合专利法实施细则第 21 条的规定。
☐权利要求 不符合专利法实施细则第 22 条的规定。
☐权利要求 不符合专利法实施细则第 23 条的规定。

上述结论性意见的具体分析见本通知书的正文部分。

7. 基于上述结论性意见, 审查员认为:

- ☐申请人应按照通知书正文部分提出的要求, 对申请文件进行修改。
☒申请人应在意见陈述书中论述其专利申请可以被授予专利权的理由, 并对通知书正文部分中指出的不符合规定之处进行修改, 否则将不能授予专利权。
☐专利申请中没有可以被授予专利权的实质性内容, 如果申请人没有陈述理由或者陈述理由不充分, 其申请将被驳回。

8. 申请人应注意下述事项:

- (1) 根据专利法第 37 条的规定, 申请人应在收到本通知书之日起的肆个月内陈述意见, 如果申请人无正当理由逾期不答复, 其申请将被视为撤回。
(2) 申请人对其申请的修改应符合专利法第 33 条的规定, 修改文本应一式两份, 其格式应符合审查指南的有关规定。
(3) 申请人的意见陈述书和/或修改文本应邮寄或递交国家知识产权局专利局受理处, 凡未邮寄或递交给受理处的文件不具备法律效力。
(4) 未经预约, 申请人和/或代理人不得前来国家知识产权局专利局与审查员举行会晤。

9. 本通知书正文部分共有 1 页, 并附有下列附件:

- ☐引用的对比文件的复印件共 份 页。 ☐

审查员: 毛永宁 (2554)

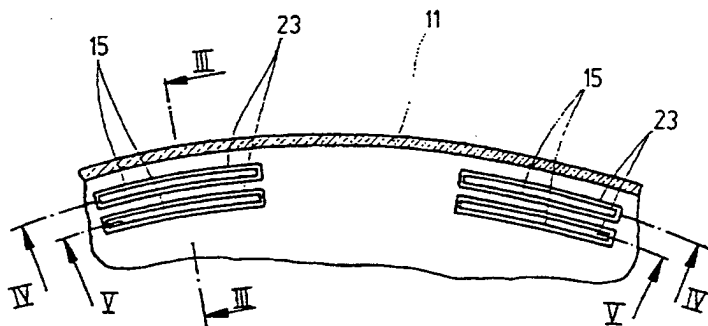
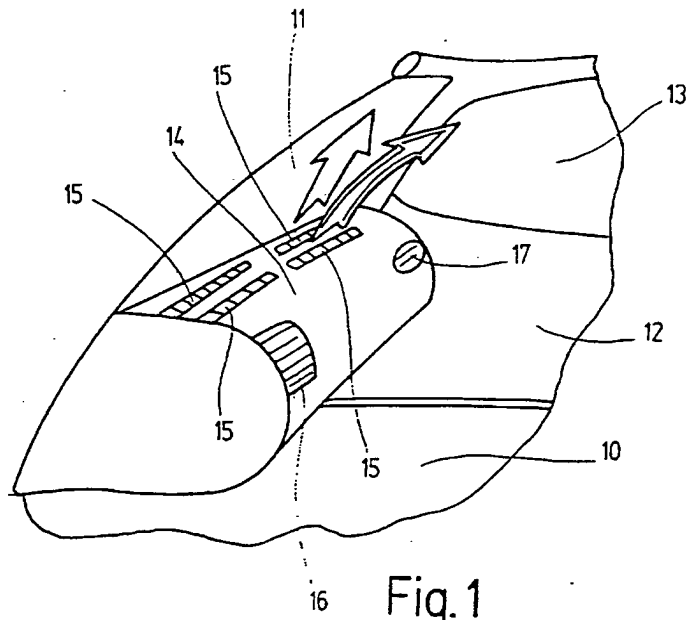
2005 年 9 月 14 日

审查部门 机械发明审查部

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(注: 凡寄给审查员个人的信函不具有法律效力)



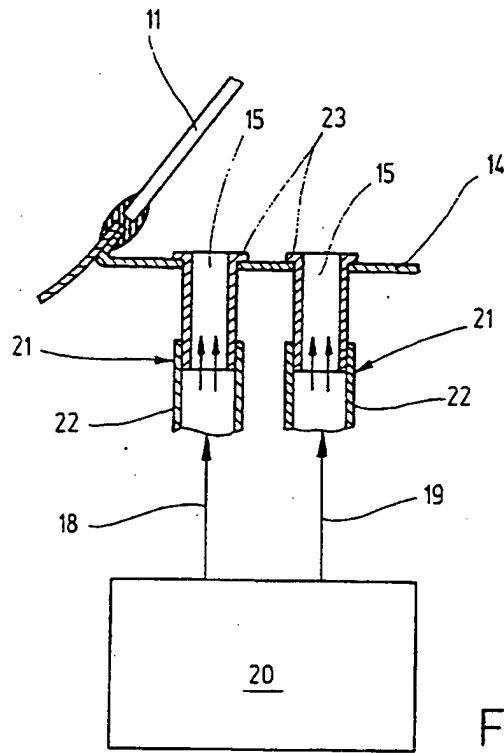


Fig. 3

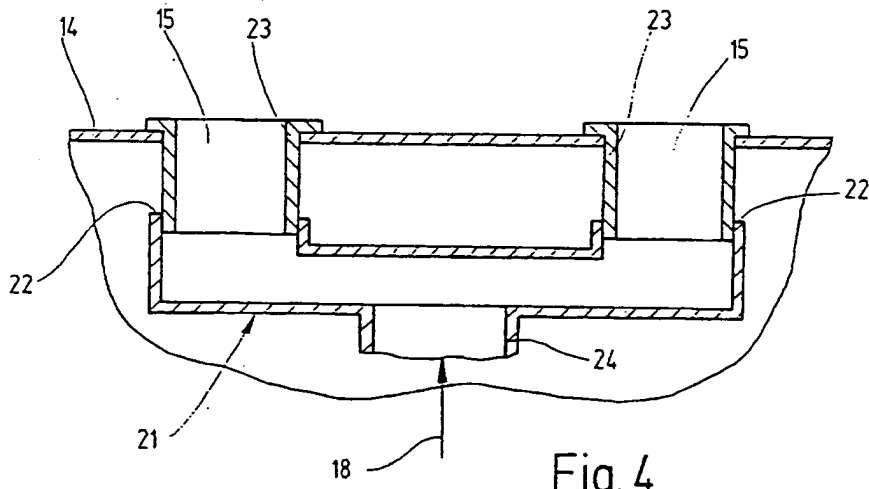


Fig. 4

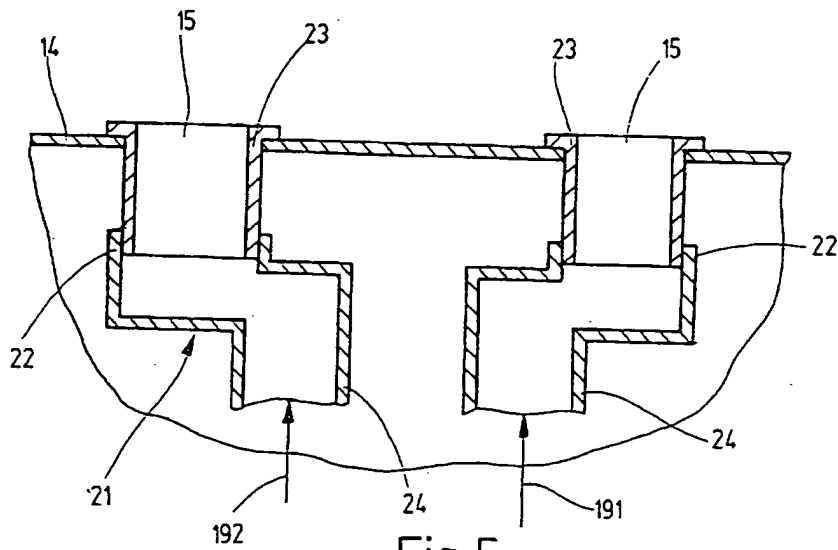


Fig. 5

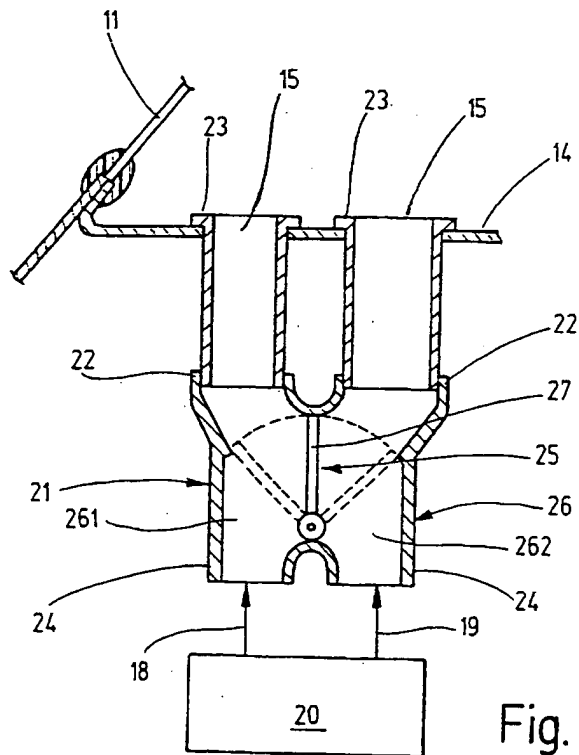


Fig. 6